



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/541,021

06/28/2005

Seiichi Tanabe

Q88428

4023

23373 7590 09/12/2007
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

LOEWE, SUN JAE Y

ART UNIT

PAPER NUMBER

1626

MAIL DATE

DELIVERY MODE

09/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/541,021	Applicant(s) TANABE ET AL.	
	Examiner Sun Jae Y. Loewe	Art Unit 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/9/06, 10/27/05, 6/28/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-15 are pending in the instant application.

Priority

2. Receipt acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statements (June 28, 2006; October 27, 2005; November 9, 2006) were in compliance with the provisions of 37 CFR 1.97 and 37 CFR 1.98. The information disclosure statements were considered. Signed copies of form 1449 are enclosed herewith.

The references of Wu Li-Bing et al. and Liao Hong-Ying et al. were not considered because English language translations were not provided.

Claim Rejections - 35 USC § 102

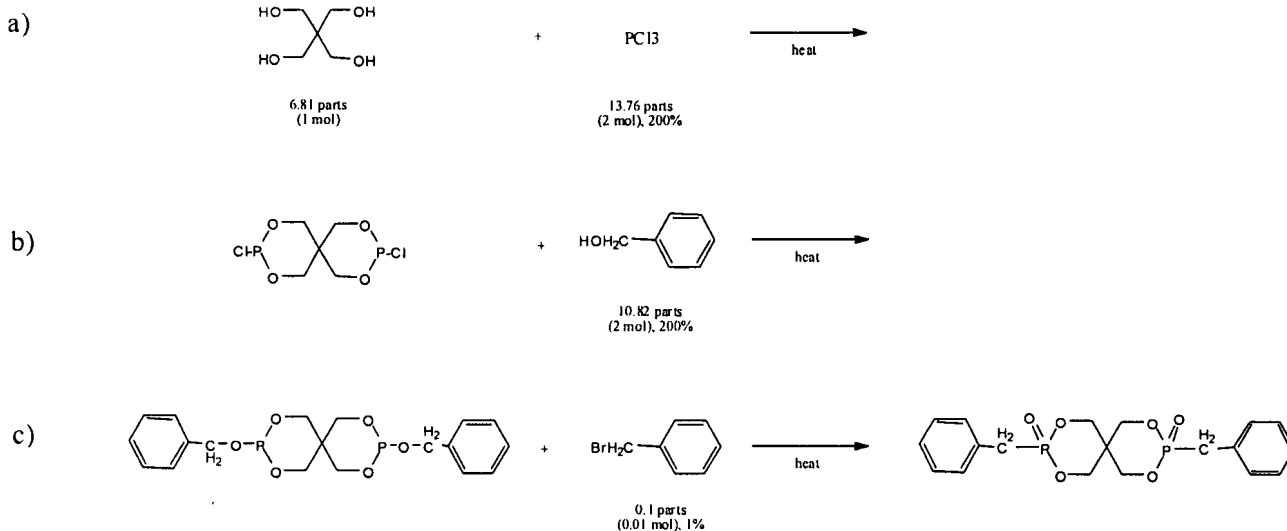
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1, 2, 7-13 and 15 rejected under 35 U.S.C. 102(a) as being anticipated by Yamanaka et al. (WO 02/092690, page 41, example 3). Disclosure by Yamakata et al., represented pictorially below, falls within the genus instantly claimed.

Art Unit: 1626



Steps a) - c) performed in one pot, solvent=toluene, in the presence of pyridine (organic base)

Claim Rejections - USC § 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1626

5. Claims 1-15 rejected under 35 USC 103(a) as being unpatentable over Yamakata et al. (WO 02/092690, page 41, example 3).

Determination of the scope and contents of the prior art.

Yamakata et al. teach the process shown above in section 4.

Ascertaining the differences between the prior art and the claims at issue.

The difference between the prior art and the instant claims: changes in reaction conditions.

For example, the instant claims teach the molar ratio of 1.5-3 mol benzyl bromide to 1 mole of pentaerythritol, the prior art teaches the ratios shown above (Section 4). As a further example, the instant claims teach purification of the intermediate pentaerythritol diphosphonate prior to its use in reaction c), see above section 4.

Resolving the level of ordinary skill in the pertinent art – Prima Facie Case of Obviousness.

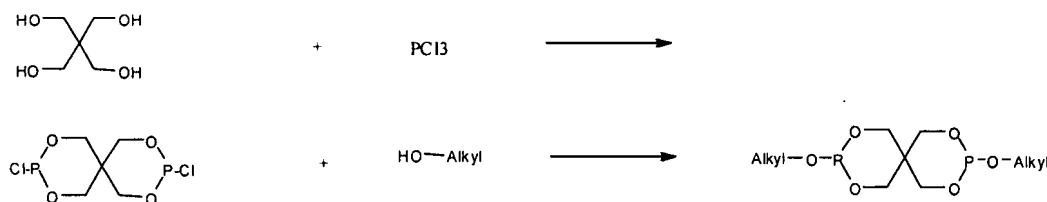
Changes in process conditions of an old process does not impart patentability in the absence of unexpected results. In re Boesch, 205 USPQ 215 (1980). In re Aller et al. (CCPA 1955) 220 F2d 454. In re Surrey et al (CCPS 1963) 319 F2d 233, 138 USPQ 67 (the mere use of different starting materials in a conventional process to produce the product one would expect therefrom does not render the process unobvious). Therefore, the teaching of Yamakata et al. suggests to one of ordinary skill to practice the instantly claimed process. One of ordinary skill would have reasonable expectation of success in practicing the instantly claimed process.

Claims 1-15 are obvious in view of the teaching by Yamakata et al.

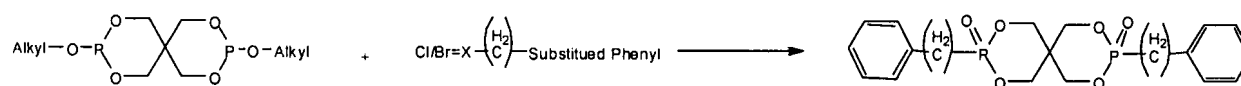
6. Claims 1-15 rejected under 35 U.S.C. 103(a) as being unpatentable over Batorewicz et al. (column 3-5) in view of Hechenbleikner et al. (pages 2 and 6), further in view Saady et al. (p. 676).

Art Unit: 1626

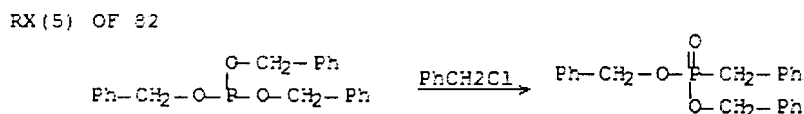
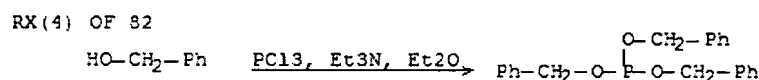
Batorewicz et al.



Hechenbleikner et al.



Saady et al.

Determination of the scope and contents of the prior art.

Batorewicz et al. teach a process for preparation of pentaerythritol diphosphite ester.

Hechenbleikner et al. teach a process for preparation of pentaerythritol diphosphonate (represented by formula 5 in instant specification) that uses pentaerythritol diphosphite ester as a starting material.

Ascertaining the differences between the prior art and the claims at issue.

The combination of the two processes disclosed in the prior art (above) produce the instantly claimed invention with the following difference

- different process conditions (eg. molar ratio, temperature)
- different starting material/intermediate – specifically, the instant claims are drawn to a process that uses an aralkyl alcohol (see compound of formula 3) whereas the prior art teaches alkyl-alcohol

Resolving the level of ordinary skill in the pertinent art – Prima Facie Case of Obviousness.

Art Unit: 1626

The motivation for one of ordinary skill to combine the teachings of Batorewicz et al. and Hechenbleikner et al. is to obtain a process for producing pentaerythritol diphosphonate, which has known utility (eg. stabilizing agent for lubricating oils, Hechenbleikner et al. p. 6).

- a) See above section 5
- b) Saadi et al. teach that the aralkyl alcohols can be used to produce diphosphite esters. The reference further teaches that the resulting aryl-diphosphite ester can be used to produce aryl-diphosphonate. Therefore, the teaching of Saadi et al. suggest that aralkyl and alkyl alcohols are functional equivalents in the reactions for the production of phosphite as well as phosphonate. In re Surrey et al (CCPS 1963) 319 F2d 233, 138 USPQ 67 (the mere use of different starting materials in a conventional process to produce the product one would expect therefrom does not render the process unobvious).

In view of the above, the prior art suggests to one of ordinary skill to practice the claimed invention with reasonable expectation of success. Thus, the instant claims are prima facie obvious.

Conclusion


7. No claims allowed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sun Jae Y. Loewe whose telephone number is (571) 272-9074. The examiner can normally be reached on M-F 7:30-5:00 Est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571)272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sun Jae Y. Loewe, Ph.D.
Art Unit 1626



REBECCA ANDERSON
PATENT EXAMINER